International Journal of Medicine and Pharmaceutical Science (IJMPS)
ISSN (P): 2250-0049; ISSN (E): 2321-0095
Vol. 7, Issue 5, Oct 2017, 9-14

TRANS STELLAR
•Journal Publications •Research Consultancy

CERVICAL SYMPATHECTOMY FOR HYPERHIDROSIS: A REPORT OF TWO CASES

VINAY KRISHNA[1], RAKESH VERMA[2], RAMESH THAKUR[3], RN PANDEY[4] & TANU MIDHA[5]

[1] *Director, LPS Institute of Cardiology and Cardiac Surgery, GSVM Medical College, Kanpur, Uttar Pradesh, India*

[2,3,4] *Professor, Department of Cardiovascular and Thoracic Surgery, LPS Institute of Cardiology and Cardiac Surgery, GSVM Medical College, Kanpur, Uttar Pradesh, India*

[5]*Associate Professor, Department of Community Medicine, Government Medical College, Kannauj, Uttar Pradesh, India*

ABSTRACT

Generalized hyperhidrosis, or excessive sweating is a chronic autonomic disorder, that not only causes social embarrassment but also leads to occupational, physical and psychological disability. The aetiology is usually unknown. Primary generalized hyperhidrosis starts in childhood. A 22 year old male was admitted with the history of profuse sweating of hands, feet, axillae and face. He complained of excessive sweating, since early childhood. His hands and feet were always wet and his clothes used to get drenched with sweat. The patient did not respond to any type of medication. Right sided transaxillary thoracoscopic, cervical sympathectomise was performed. Post-operatively, all the symptoms have completely resolved and the quality of life of the patient has remarkably improved.

A 21 year old female, was presented with history of profuse sweating of hands, feet and axillae. Her hands were always dripping wet, since childhood. The patient had taken several medicines, but without any response. Right sided transaxillary thoracoscopic cervical sympathectomise was performed. Post-operation, there was complete improvement in the symptoms.

KEYWORDS: Sweating of Hands, Feet, Axillae & Face

Received: Aug 14, 2017; **Accepted**: Sep 04, 2017; **Published**: Sep 20, 2017; **Paper Id**.: IJMPSOCT20172

Original Article

INTRODUCTION

Case Report

A 22 year old male presented with the history of profuse sweating of the hands, feet, axilla and face since, early childhood. Excessive sweating persisted throughout the day, but, it increased substantially with only slightest exposure to sunlight, or slightest feeling of anxiety. The sweating was so profuse that, the patient could not even lift objects, as everything would slip down from his hands.

The patient was initially treated for generalized hyperhidrosis, at different hospitals with propranolol and Nifedipine for one month, but, did not respond to the medication. He showed some improvement with oral anti-cholinergics, like glycopyrrolinium bromide 2 mg thrice a day, which he took 4 years and to a lesser extent, with propantheline bromide, 15mg thrice a day, which he took for one year. However, such high doses of medicines caused unpleasant side effects like dry mouth, dry eyes and blurring of vision, for which reason he discontinued

these medicines.

As medical therapy was not successful in treating his generalized hyperhidrosis, he consulted and was admitted to the LPS Institute of Cardiology, and offered to undergo thoracoscopic cervical sympathectomy, on right side. On admission, his pulse rate was found to be 90 per minute, high volume and bounding.

A 21 year old female was admitted with history of profuse sweating of hands, feet and axillae (Figure. 1). Her hands and feet were always drenched in sweat since childhood. The patient did not respond to any type of medication. The pulse rate was 112 per minute. Right sided transaxillary thoracoscopic cervical sympathectomy was performed. Post-operation, all the symptoms had completely resolved and the pulse rate had come down to 72 per minute (Figure 2.)

PROCEDURE

The same procedure was adopted in both the patients. The operation was performed under general anaesthesia, following placement of a left sided 37Fr double-lumen endo broncheal tube under guidance of paediatric video bronchoscope (Olympus BF- 3C-160). The patient's arms were abducted to 90 degrees, and the upper torso was elevated to 40 degrees. Transaxillary cervical sympathectomy was planned under thoracoscopic guidance. A small 2" long horizontal incision was placed, just below the hairline in the right axilla. The transaxillary incision was depended, to reach just outside the rib cage and dissection made in that plane upwards, towards exile to enter the thoracic cavity through 2^{nd} ICS. The right lung was deflated with the help of double lumen endo-bronchial tube. No gas insufflation was required. A trocar was inserted in 5th ICS mid axillary line, for using the direct viewing thoracoscope (Karl Storz-26037V), having one working channel. Long slim waste dissecting forceps and scissors was inserted through the small transaxillary incision, and the thoracoscopic port was used for video visualization of the operative field on the monitor (Karl Storz-Image-1-S3), along with mono-polar diathermy coagulation for hemostasis. The cervical sympathetic chain was dissected from the lower half of a stellate ganglion T1 to T_4, dividing all connections going into inter vertebral foramina. Special care was taken to save the adjoining inter costalarteries & veins, from inadvertent injury. One chest tube was placed through the access port, made for thoracoscope and the axillary wound was closed in layers. There was no air leak, hence, chest tube was removed within 4 hours in ICU. The patient was shifted toward after 6 hours, and discharged within 24 hours. Following the procedure, the patients had a complete remission of symptoms and their hands, feet and axillae now remain warm and dry. Their pulse rate also settled to around 70 per minute.

DISCUSSIONS

Primary generalized hyperhidrosis is characterized, by excessive perspiration beyond thermoregulatory needs, particularly in response to temperature or emotional stimuli. Generalized hyperhidrosis commonly affects the hands, face, axillae, and feet, and causes significant medical and psychosocial consequences. The cause of generalized hyperhidrosis is usually unknown. [1]

The diagnostic criteria for generalized hyperhidrosis includes excessive sweating, that lasts at least six months without any obvious cause, and has at least two of the following features: impairs daily activities, a bilateral and relatively symmetric pattern of sweating occurring at least once per week, an age of onset younger than 25 year, cessation of focal sweating during sleep, or positive family history.[3]

Medical treatments, such as local antiperspirants, systemic anticholinergic agents, iontophoresis, and botulinum

toxin alleviate symptoms only transiently. Surgical therapy is the most effective and recognized as the treatment of choice, for patients with primary generalized hyperhidrosis.[5]

Thoracoscopic cervical sympathectomy has become the surgical technique of choice, for treating intractable Palmar generalized hyperhidrosis, and can be performed through multiple ports or a single port. No difference was found between the multiple- and single-port methods. Both are effective, safe, minimally invasive procedures, that permanently improve the quality of life in patients with Palmar generalized hyperhidrosis. [8]

Some studies have reported bilateral thoracoscopic cervical sympathectomy[5, 8], as a treatment for Palmar and axillary hyperhydrosis, however, our findings show that unilateral thoracoscopic sympathectomy gives similar results in improvement of symptoms, and quality of life of the patient. The decrease in the heart rate revealed that, overall sympathetic hyperactivity had been controlled. Secondly, there was no complaint of compensatory sweating in other parts of the body.

Our observations are similar to those of Wasserman A et al, who reported a case of systemic sclerosis and Raynaud's phenomenon, who got relieved of bilateral symptoms following unilateral digital sympathectomy[9]. They observed a case with limited systemic sclerosis that underwent unilateral digital sympathectomy and manifested improvement in symtopms bilaterally. The bilateral benefits from Raynaud's phenomenon were present, even when he was exposed to stress with extreme cold and hypoxia, as in mountaineering. Despite, developing other symptoms of high-altitude sickness and cerebral edema, his fingers were not affected, while other mountaineers developed severe frostbite. It was concluded that, selective unilateral sympathectomy in systemic sclerosis, for Raynaud's phenomenon with digital ulcerations, can result in bilateral benefits, in spite of stress with cold and hypoxia.

The sympathetic nervous system is complex and transmitted is bidirectional. Valley MA also reported that, in a case with upper extremity sympathetic regional pain, who did not initially respond to ipsilateral sympathetic resection, contralateral thoracoscopic sympathectomy, at the T2-T4 sympathetic level relieved the pain.[10]In another case, with paraneoplastic Raynaud's phenomenon, associated with distal gangrene, unilateral T2, T3 thoracic percutaneous radiofrequency sympathectomy provided bilateral pain relief with improved perfusion.[11] The bilateral response was unexpected, but the authors hypothesized that cross-innervations may exist at the level of the thoracocervical plexuses. In addition, sympathetic fibers may have interconnections with dorsal horn neurons, and project pain transmission through ipsilateral and contralateral tracts. By blocking afferent sympathetic fiber conduction, pain propagation may be inhibited at the spinal level and may be responsible for bilateral analgesia. The cholinergic pathway has been reported to promote anti-inflammatory cytokines.[12]. It may be, that unilateral digital sympathectomy, that causes a systemic shift toward this cholinergic anti-inflammatory pathway, that produces a decrease in the overall sympathetic over activity in the body.

CONCLUSIONS

In conclusion, for patients with severe palmar generalized hyperhidrosisthoracoscopic cervical sympathectomy is well tolerated, carries a good prognosis, and appears to be the operative procedure of choice. As observed in our case, after unilateral sympathectomy, patients should be examined for benefit on the contralateral side before undergoing a second sympathectomy.

REFERENCES

1. *Leung, A.K.C, Chan, P.Y.H, Choi, M.C.K. Generalized hyperhidrosis. Int. J. Dermatol. 1999, 38, 561–567.*

2. *Adar, R. Palmar generalized hyperhidrosis and its surgical treatment: A report of 100 cases. Ann. Surg. 1977,186, 34.*

3. *Hornberger, J, Grimes, K, Naumann, M, Glaser, D.A, Lowe, N.J, Naver, H et al. Recognition, diagnosis, and treatment of primary focal generalized hyperhidrosis. J. Am. Acad. Dermatol. 2004, 51, 274–286.*

4. *Sato, K.; Kang, W.H.; Saga, K.; Sato, K.T. Biology of sweat glands and their disorders. I. Normal sweat gland function. J. Am. Acad. Dermatol. 1989, 20, 537–563.*

5. *Ibrahim M, Menna C, Andreetti C, Ciccone AM, D'Andrilli A, Maurizi G, et al. Bilateral single-port sympathectomy: long-term results and quality of life.Biomed Res Int. 2013; 2013:348017. doi: 10.1155/2013/348017. Epub 2013 Dec 8.*

6. *Malone PS, Cameron AEP, Rennie JA. Endoscopic thoracic sympathectomy in the treatment of upper limb generalized hyperhidrosis. Ann R Coll Surg Engl 1986;68-93-4*

7. *Kux M. Thoracic endoscopic sympathectomy in palmar and axillary generalized hyperhidrosis. Arch Surg 1978;113:264-6*

8. *Ibrahim M, Allam A.Comparing two methods of thoracoscopic sympathectomy for palmar generalized hyperhidrosis. JAAPA. 2014 Sep;27(9):1-4. doi: 10.1097/01.JAA.0000453237.17130.6b.*

9. *Wasserman A, Brahn E. Systemic Sclerosis: Bilateral Improvement of Raynaud's phenomenon with Unilateral Digital Sympathectomy. Semin Arthritis Rheum 2010;40:137-146*

10. *Valley MA, Rogers JN, Gale DW. Relief of recurrent upper extremity sympathetically-maintained pain with contralateral sympathetic blocks: evidence for crossover sympathetic innervation? J Pain Symptom Manage 1995; 10(5):396-400.*

11. *Gofeld M, Faclier G. Bilateral pain relief after unilateral thoracic percutaneous sympathectomy. Can J Anaesth 2006; 53(3):258-62.*

12. *van Maanen MA, Vervoordeldonk MJ, Tak PP. The cholinergic anti-inflammatory pathway: towards innovative treatment of rheumatoid arthritis. Nat Rev Rheumatol 2009; 5(4):229-32.*

13. *2,4,6,7*

F

Figure 1: Palmar Hyperhydrosis in a 21 year old female

Figure 2: Complete Resolution of Palmar Hyperhidrosis following Unilateral Transaxillary Thoracoscopic Cervical Sympathectomy